AIR QUALITY ASSESSMENT

Shadow Run Ranch Residential Development
TM 5223 RPL^3, ER 00-02-035, P00-030
County of San Diego, CA

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May 12, 2014

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EXECUTIVE SUMMARY

This air quality impact study has been completed to determine the air quality impacts associated with the development of the proposed Shadow Run Residential Development. The Project proposes the subdivision of 248.2 acres into 44 residential lots on 105.1 acres, a biological open space lot of 91.3 acres, a recreation lot containing an existing man-made pond on 8 acres, and an agricultural lot of 39.2 acres on which existing agricultural groves will be maintained by the Project's Homeowner's Association (HOA). Additionally, existing agricultural groves outside of the pads and roads on each lot will be retained. The maintenance of these residential lot groves will also be covered by the HOA. Existing structures, consisting of a manager's residence, sheds, and a barn, will be demolished to make way for the development. All phases (i.e. grading, trenching, paving and construction) of the proposed Project are anticipated to start in 2014 with construction and full Buildout sometime in mid to late 2015.

During construction of the proposed Project, fugitive dust emissions will be expected during grading, heavy equipment usage, and from construction workers commuting to and from the site. During short-term construction activities, the project would exceed Particulate Matter (PM_{10}) thresholds established by the San Diego Air Pollution Control District (SDAPCD) and will require mitigation. It was found that the following mitigation measures reduced construction impacts to less than significant.

1. *Apply water during grading/grubbing activities to all active disturbed areas at least twice daily (Assuming a 51% control efficiency).*
2. *Apply water to all onsite unpaved roadways at least two times daily (Assuming 51% control efficiency).*

A screening-level health risk assessment was conducted to determine the potential for the project to result in a significant impact on nearby sensitive receptors during short-term construction activities. For purposes of this analysis, the primary pollutant of concern is diesel particulate matter (DPM) which is emitted by the operation of heavy diesel equipment during construction activities. The number of individuals exposed to DPM of this concentration due to the project would be less than one in one million. Therefore, no health risks are expected.

Also, no concurrent large projects are expected to be under construction simultaneously to the proposed project so cumulative construction impacts are not expected. Furthermore, since the project's cumulative increase does not exceed General Plan densities for the proposed site, the project would conform to the requirements in the RAQS and SIP. Finally, the proposed project would not be exposed to offensive odors from offsite sources such as the Pala Wastewater Treatment Plant or the Gregory Canyon Landfill due to the fact that the proposed projects are separated by significant intervening topography, however, the County of San Diego will require the project applicant to disclose the relative locations of these offsite uses to perspective

buyers. Also, no onsite odors are expected except agricultural odors which will be fully disclosed to future residents. The project will be conditioned for disclosure of expected onsite odors. These odors are typical for rural uses such as those proposed so no odor impacts are expected.

1.0 INTRODUCTION

1.1 Purpose of this Study

The purpose of this Air Quality study is to determine potential air quality impacts (if any) that may be created by construction, area or operational emissions (short term or long term) from the proposed Project. Should impacts be determined, the intent of this study would be to recommend suitable mitigation measures to bring those impacts to a level that would be considered less than significant.

1.2 Project Location

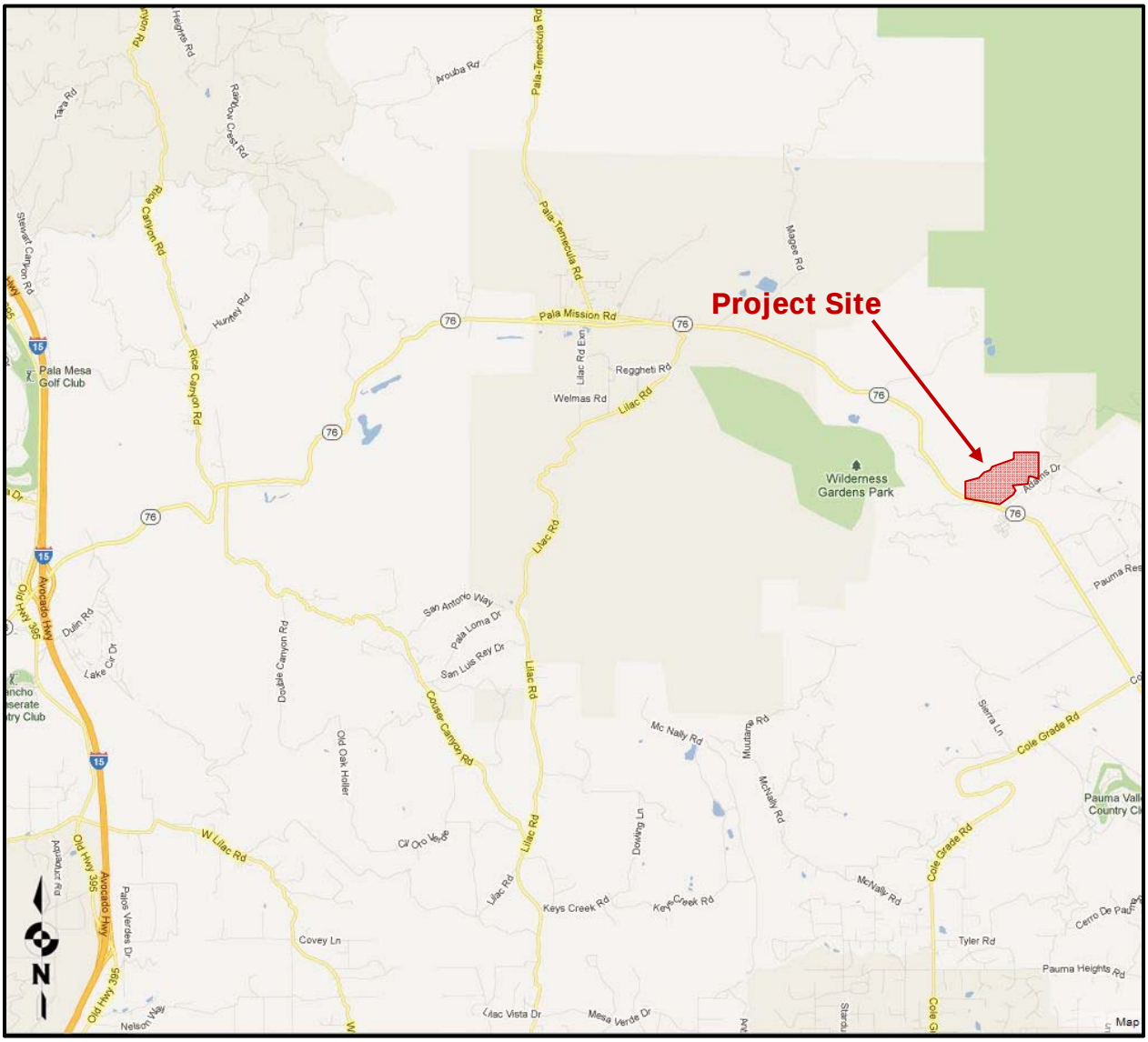
The proposed development is located in the unincorporated County of San Diego, approximately ten miles east of Interstate 15. The Project is adjacent to State Route 76 (SR 76) just north of Adams Drive. Access to the Project site is provided by SR 76. State Route 76 and Pala Temecula Road are arterials that connect the Project to other arterials. Interstate 15 provides regional access to the Project site. A general project vicinity map is shown in Figure 1–A on the following page.

1.3 Project Description

The proposed project seeks the development of 47 lots consisting of 44 residential uses with a 2-acre minimum size and 3 open space areas over a 248.26 acre project site in the Pala/Pauma Sub regional Area. Out of the 248.26 acres only approximately 110 acres will be graded for residential lots and the rest will be used as open space. Grading will include a total of 63,660 cubic yards (cu yd) of earthwork and is expected to balance. Grading could start sometime in 2014 and full Buildout could be as soon as 14-months later in 2015.

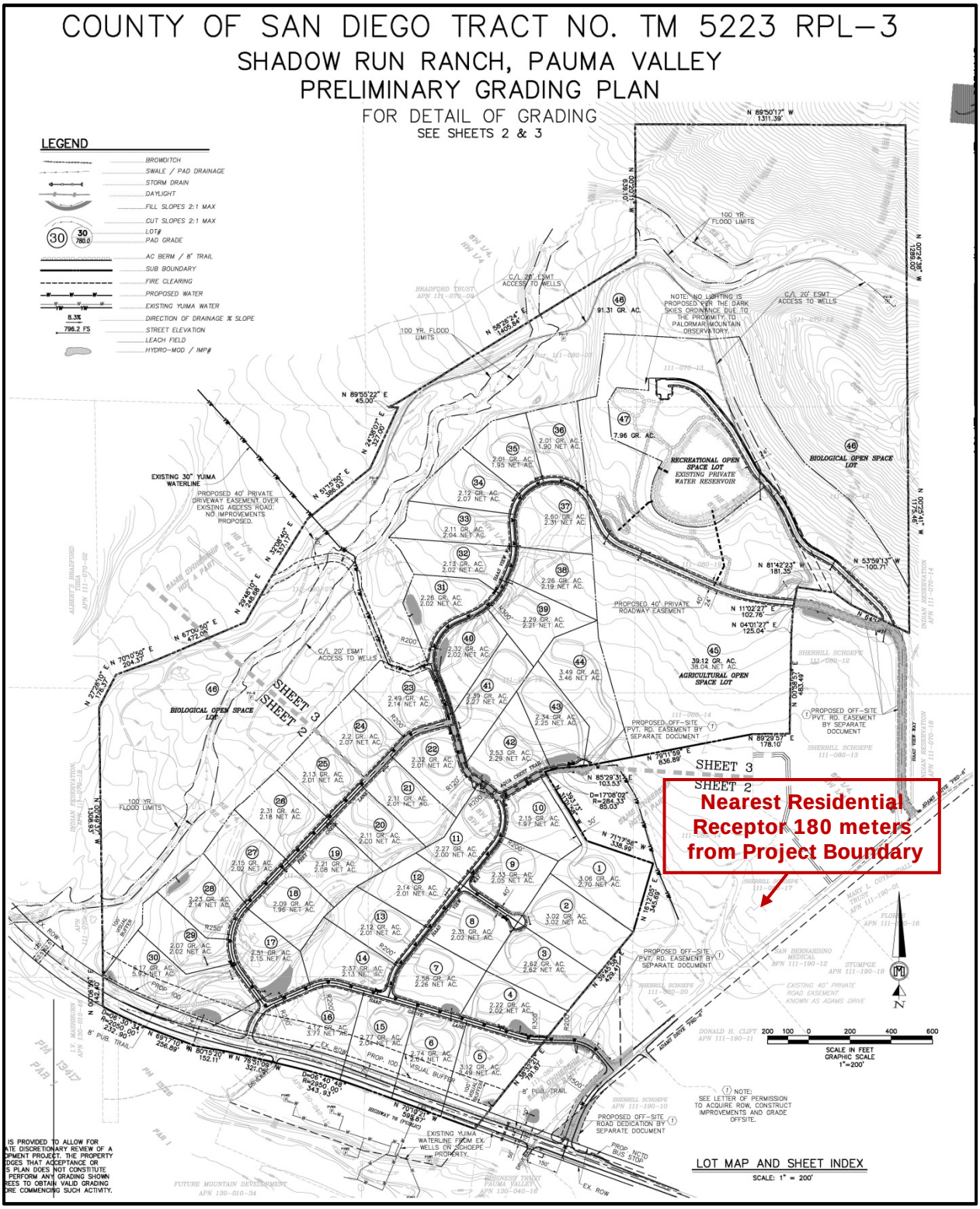
Also, as part of this project, existing agricultural groves outside of the pads and roads on each lot will be retained while maintenance of these groves will be covered by the HOA. Existing structures, consisting of a manager's residence, sheds, and a barn, will be demolished to make way for the development. A site development plan is shown in Figure 1-B on Page 5 of this report.

Figure 1-A: Project Vicinity Map



Source: Google Maps, 5/12

Figure 1-B: Proposed Project Site Plan



2.0 EXISTING ENVIRONMENTAL SETTING

2.1 Existing Setting

The Project site lies in the northern portion of San Diego County 10 miles east of Interstate 15, approximately 40 miles north of the City of San Diego, north of Pala Road (State Route 76) and northwest of Adams Drive. The Pala Band of Mission Indians Reservation lies west of the proposed Shadow Run development. The existing use of the Project site is residential and agricultural. The Shadow Run plan area is generally represented by a diverse topography with elevations ranging from 720 feet to 1,620 feet above mean sea level. The northern portion of the site is generally steep sloped generally transitioning into a moderately sloped topography to the south. Land uses directly surrounding the project are agricultural and undeveloped lands.

The Pala Casino Resort and Spa is located west of the Project site and contains on-site facilities for numerous amenities such as shopping, a day spa, golfing, dining, entertainment, a resort hotel, and a small commercial center. The Pala Casino Resort and Spa facilities have recently undergone a major renovation and expansion, which created parking structures further to the west, towards the SPA.

2.2 Climate and Meteorology

Climate within the San Diego Air Basin (SDAB) area often varies dramatically over short geographical distances with cooler temperatures on the western coast gradually warming to the east as prevailing winds from the west heat up. Most of southern California is dominated by high-pressure systems for much of the year, which keeps San Diego mostly sunny and warm. Typically, during the winter months, the high pressure system drops to the south and brings cooler, moister weather from the north. It is common for inversion layers to develop within high-pressure areas, which mostly define pressure patterns over the SDAB. These inversions are caused when a thin layer of the atmosphere increases in temperature with height. An inversion acts like a lid preventing vertical mixing of air through convective overturning.

Meteorological trends within the Pala area generally are very similar to that of nearby Bonsall where daytime highs typically range between 68ºF in the winter to approximately 83ºF in the summer with August usually being the hottest month. Median temperatures range from approximately 56ºF in the winter to approximately 73ºF in the summer. The average humidity is approximately 65% in the winter and about 73% in the summer (Source: http://www.city-data.com/city/Bonsall-California.htm). Bonsall usually receives

approximately 13.69 inches of rain per year with March usually being the wettest month (Source: http://www.weather.com /weather/wxclimatology/monthly/graph/USCA0116).

2.3 Regulatory Standards

2.3.1 Federal Standards and Definitions

The Federal Air Quality Standards were developed per the requirements of The Federal Clean Air Act, which is a federal law that was passed in 1970 and further amended in 1990. This law provides the basis for the national air pollution control effort. An important element of the act included the development of national ambient air quality standards (NAAQS) for major air pollutants.

The Clean Air Act established two types of air quality standards otherwise known as primary and secondary standards. ***Primary Standards*** set limits with the intention of protecting public health, which includes sensitive populations such as asthmatics, children and elderly. ***Secondary Standards*** set limits to protect public welfare to include the protection against decreased visibility, damage to animals, crops, vegetation and buildings.

The U.S. Environmental Protection Agency (EPA) Office of Air Quality Planning and Standards (OAQPS) has set National Ambient Air Quality Standards for principal pollutants, which are called "criteria" pollutants. These pollutants are defined below:

1. ***Carbon Monoxide (CO):*** *is a colorless, odorless, and tasteless gas and is produced from the partial combustion of carbon-containing compounds, notably in internal-combustion engines. Carbon monoxide usually forms when there is a reduced availability of oxygen during the combustion process. Exposure to CO near the levels of the ambient air quality standards can lead to fatigue, headaches, confusion, and dizziness. CO interferes with the blood's ability to carry oxygen.*
2. ***Lead (Pb):*** *is a potent neurotoxin that accumulates in soft tissues and bone over time. The major sources of lead emissions have historically been motor vehicles (such as cars and trucks) and industrial sources. Because lead is only slowly excreted, exposures to small amounts of lead from a variety of sources can accumulate to harmful levels. Effects from inhalation of lead near the level of the ambient air quality standard include impaired blood formation and nerve conduction. Lead can adversely affect the nervous, reproductive, digestive, immune, and blood-forming systems. Symptoms can include fatigue, anxiety, short-term memory loss, depression, weakness in the extremities, and learning disabilities in children.*
3. ***Nitrogen Dioxide (NO_2):*** *is a reactive, oxidizing gas capable of damaging cells lining the respiratory tract and is one of the nitrogen oxides emitted from high-temperature*

combustion, such as those occurring in trucks, cars, power plants, home heaters, and gas stoves. In the presence of other air contaminants, NO_2 is usually visible as a reddish-brown air layer over urban areas. NO_2 along with other traffic-related pollutants is associated with respiratory symptoms, respiratory illness and respiratory impairment. Studies in animals have reported biochemical, structural, and cellular changes in the lung when exposed to NO_2 above the level of the current state air quality standard. Clinical studies of human subjects suggest that NO_2 exposure to levels near the current standard may worsen the effect of allergens in allergic asthmatics, especially in children.

4. ***Particulate Matter (PM_{10} or $PM_{2.5}$):*** *is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary in shape, size and chemical composition, and can be made up of multiple materials such as metal, soot, soil, and dust. PM_{10} particles are 10 microns (µm) or less and $PM_{2.5}$ particles are 2.5 µm or less. These particles can contribute significantly to regional haze and reduction of visibility in California. Exposure to PM levels exceeding current air quality standards increases the risk of allergies such as asthma and respiratory illness.*

5. ***Ozone (O_3)****: is a highly oxidative unstable gas capable of damaging the linings of the respiratory tract. This pollutant forms in the atmosphere through reactions between chemicals directly emitted from vehicles, industrial plants, and many other sources. Exposure to ozone above ambient air quality standards can lead to human health effects such as lung inflammation, tissue damage and impaired lung functioning. Ozone can also damage materials such as rubber, fabrics and plastics.*

6. ***Sulfur Dioxide (SO_2)****: is a gaseous compound of sulfur and oxygen and is formed when sulfur-containing fuel is burned by mobile sources, such as locomotives, ships, and off-road diesel equipment. SO_2 is also emitted from several industrial processes, such as petroleum refining and metal processing. Effects from SO_2 exposures at levels near the one-hour standard include bronchoconstriction accompanied by symptoms, which may include wheezing, shortness of breath and chest tightness, especially during exercise or physical activity. Children, the elderly, and people with asthma, cardiovascular disease or chronic lung disease (such as bronchitis or emphysema) are most susceptible to these symptoms. Continued exposure at elevated levels of SO_2 results in increased incidence of pulmonary symptoms and disease, decreased pulmonary function, and increased risk of mortality.*

2.3.2 State Standards and Definitions

The State of California Air Resources Board (ARB) sets the laws and regulations for air quality on the state level. The California Ambient Air Quality Standards (CAAQS) are either the same as or more restrictive then the NAAQS and also restrict four additional contaminants. Table 2.1 on the following page identifies both the NAAQS and CAAQS. The additional contaminants as regulated by the CAAQS are defined below:

1. ***Visibility Reducing Particles**: Particles in the Air that obstruct the visibility.*
2. ***Sulfates**: are salts of Sulfuric Acid. Sulfates occur as microscopic particles (aerosols) resulting from fossil fuel and biomass combustion. They increase the acidity of the atmosphere and form acid rain.*
3. ***Hydrogen Sulfide (H_2S)**: is a colorless, toxic and flammable gas with a recognizable smell of rotten eggs or flatulence. H_2S occurs naturally in crude petroleum, natural gas, volcanic gases, and hot springs. Usually, H_2S is formed from bacterial breakdown of organic matter. Exposure to low concentrations of hydrogen sulfide may cause irritation to the eyes, nose, or throat. It may also cause difficulty in breathing for some asthmatics. Brief exposures to high concentrations of hydrogen sulfide (greater than 500 ppm) can cause a loss of consciousness and possibly death.*
4. ***Vinyl Chloride**: also known as chloroethene and is a toxic, carcinogenic, colorless gas with a sweet odor. It is an industrial chemical mainly used to produce its polymer, polyvinyl chloride (PVC).*

Table 2.1: Ambient Air Quality Standards

Ambient Air Quality Standards						
Pollutant	**Average Time**	**California Standards[1]**		**Federal Standards[2]**		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m3)	Ultraviolet Photometry	-	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m3)		0.075 ppm (147 µg/m3)		
Respirable Particulate Matter (PM10)	24 Hour	50 µg/m3	Gravimetric or Beta Attenuation	150 µg/m3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m3		-		
Fine Particulate Matter PM2.5	24 Hour	No Separate State Standard		35 µg/m3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m3	Gravimetric or Beta Attenuation	12.0 µg/m3	15 µg/m3	
Carbon Monoxide (CO)	8 hour	9.0 ppm (10mg/m3)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m3)	-	Non-Dispersive Infrared Photometry
	1 hour	20 ppm (23 mg/m3)		35 ppm (40 mg/m3)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m3)		-	-	-
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (57 µg/m3)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m3)[8]	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.18 ppm (339 µg/m3)		0.100 ppm[8] (188/ µg/m3)	-	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	-	Ultraviolet Fluorescence	0.030 ppm (for Certain Areas)	-	Ultraviolet Flourescence; Spectrophotometry (Pararoosaniline Method)[9]
	24 Hour	0.04 ppm (105 µg/m3)		0.14 ppm (for Certain Areas) (See Footnote 9)	-	
	3 Hour	-		-	0.5 ppm (1300 µg/m3)	
	1 Hour	0.25 ppm (655 µg/m3)		75 ppb (196 µg/m3)	-	
Lead[10]	30 Day Average	1.5 µg/m3	Atomic Absorption	-		-
	Calendar Quarter	-		1.5 µg/m3	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Rolling 3-Month Average	-		0.15 µg/m3		
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer - visibility of ten miles or more (0.07 -30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape				
Sulfates	24 Hour	25 µg/m3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m3)	Ultraviolet Fluorescence			
Vinyl Chloride[10]	24 Hour	0.01 ppm (26 µg/m3)	Gas Chromatography			

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter—PM10, PM2.5, and visibility reducing articles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3 is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent procedure which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.
8. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
9. On June 2, 2010, a new 1-hour SO2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
10. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
11. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
12. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Source: California Air Resources Board (6/4/13)

2.3.3 Regional Standards

The State of California has 35 specific air districts, which are each responsible for ensuring that the criteria pollutants are below the NAAQS and CAAQS. Air basins that exceed either the NAAQS or the CAAQS for any criteria pollutants are designated as "non-attainment areas" for that pollutant. Currently, there are 18 non-attainment areas for the federal ozone standard, 10 non-attainment areas for the federal PM_{10} standard, and seven non-attainment areas for the federal $PM_{2.5}$ standard in California. The state therefore created the California State Implementation Plan (SIP), which is designed to provide control measures needed for California Air basis to attain ambient air quality standards.

The San Diego Air Pollution Control District (SDAPCD) is the government agency which regulates sources of air pollution within San Diego County. Therefore, the SDAPCD developed a Regional Air Quality Strategy (RAQS) to provide control measures to try to achieve attainment status. Currently, San Diego is in "non-attainment" status for federal O_3 and the State PM_{10} and $PM_{2.5}$ however, an attainment plan is only available for O_3. The RAQS was adopted in 1992 and has been updated as recently as 2009 which was the latest update incorporating minor changes to the prior 2004 update.

The RAQS is largely based on population predictions by the San Diego Association of Governments (SANDAG). Projects that produce less growth than predicted by SANDAG would generally conform to the RAQS and projects that create more growth than projected by SANDAG may create a significant impact assuming the project either produces unmitigable emission generation in excess of the regional standards. Also the project would be considered a significant impact if the project produces cumulative impacts.

The 2009 update mostly clarifies and enhances emission reductions by implementing new VOC and NOX reduction measures. The criteria pollutant standards are generally attained when each monitor within the region has had no exceedances during the previous three calendar years. A complete listing of the current attainment status with respect to both federal and state nonattainment status by pollutants for San Diego County is shown in Table 2.2 on the following page.

Table 2.2: San Diego County Air Basin Attainment Status by Pollutant

San Diego County Air Basin Attainment Status by Pollutant			
Pollutant	Average Time	California Standards	Federal Standards
Ozone (O_3)	1 Hour	Non-attainment	No Federal Standard
	8 Hour		Basic Non-attainment
Respirable Particulate Matter (PM10)	24 Hour	Non-attainment	Unclassified[1]
	Annual Arithmetic Mean	No State Standard	Unclassified[2]
Fine Particulate Matter PM2.5	24 Hour	No State Standard	Attainment
	Annual Arithmetic Mean	Non-attainment	Attainment
Carbon Monoxide (CO)	8 hour	Attainment	Maintenance Area[3]
	1 hour		
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	No State Standard	Attainment
	1 Hour	Attainment	No Federal Standard
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	No State Standard	Attainment
	24 Hour	Attainment	Attainment
	1 Hour	Attainment	No Federal Standard
Lead	30 Day Average	Attainment	No Federal Standard
	Calendar Quarter	No State Standard	Attainment
Visibility Reducing Particles	8 Hour (10AM to 6PM, PST)	Unclassified	No Federal Standard
Sulfates	24 Hour	Attainment	No Federal Standard
Hydrogen Sulfide	1 Hour	Unclassified	No Federal Standard

1. Data reflects status as of March 19, 2009.

2. Unclassified; indicates data are not sufficient for determining attainment or nonattainment.

3. Maintenance Area (defined by U.S. Department of Transportation) is any geographic region of the United States previously designated nonattainment pursuant to the CAA Amendments of 1990 and subsequently redesignated to attainment subject to the requirement to develop a maintenance plan under section 175A of the CAA, as amended.

2.4 California Environmental Quality Act (CEQA) Significance Thresholds

The California Environmental Quality Act has provided a checklist to identify the significance of air quality impacts. These guidelines are found in Appendix G of the CEQA guidelines and are as follows:

AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the Project:

A: Conflict with or obstruct implementation of the San Diego Regional Air Quality Strategy (RAQS) or applicable portions of the State Implementation Plan (SIP)?

B: Result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation?

C: Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable Federal or State ambient air quality standard (PM10, PM2.5 or exceed quantitative thresholds for O3 precursors, oxides of nitrogen [NOX] and Volatile Organic Compounds [VOCs])?

D: Expose sensitive receptors (including, but not limited to, schools, hospitals, resident care facilities, or day-care centers) to substantial pollutant concentrations?

E: Create objectionable odors affecting a substantial number of people?

2.5 SDAPCD Rule 20.2 – Air Quality Impact Assessment Screening Thresholds

The SDAPCD has established thresholds in Rule 20.2 for new or modified stationary sources; however, the County's Guidelines for Determining Significance and Report Format and Content Requirements should be used for Air Quality Impact Assessments (AQIA) for determining CEQA impacts. These screening criteria can be used to demonstrate that a project's total emissions would not result in a significant impact as defined by CEQA. Also, since SDAPCD does not have an AQIA threshold for Volatile Organic Compounds (VOCs), it is acceptable to use the Coachella Valley VOC threshold from South Coast Air Quality Management District. Should emissions be found to exceed these thresholds, additional modeling is required to demonstrate that the project's total air quality impacts are below the state and federal ambient air quality standards. These screening thresholds for construction and daily operations are shown in Table 2.3 below.

Table 2.3: Screening Threshold for Criteria Pollutants

Pollutant	Total Emissions (Pounds per Day)
Construction Emissions	
Respirable Particulate Matter (PM_{10} and $PM_{2.5}$)	100 and 55
Nitrogen Oxide (NO_x)	250
Sulfur Oxide (SO_x)	250
Carbon Monoxide (CO)	550
Volatile Organic Compounds (VOCs)	75
Reactive Organic Gases (ROG) SCAQMD	75
Operational Emissions	
Respirable Particulate Matter (PM_{10} and $PM_{2.5}$)	100 and 55
Nitrogen Oxide (NO_x)	250
Sulfur Oxide (SO_x)	250
Carbon Monoxide (CO)	550
Lead and Lead Compounds	3.2

Volatile Organic Compounds (VOCs)	75
Reactive Organic Gases (ROG) SCAQMD	75

Non Criteria pollutants such as Hazardous Air Pollutants (HAPs) or Toxic Air Contaminants (TACs) are also regulated by the SDAPCD. Rule 1200 (Toxic Air Contaminants - New Source Review) adopted on June 12, 1996, requires evaluation of potential health risks for any new, relocated, or modified emission unit which may increase emissions of one or more toxic air contaminants. The rule requires that projects that propose to increase cancer risk to between 1 and 10 in one million need to implement toxics best available control technology (T-BACT) or impose the most effective emission limitation, emission control device or control technique to reduce the cancer risk. At no time shall the project increase the cancer risk to over 10 in one million. Projects creating cancer risks less than one in one million are not required to implement T-BACT technology.

The U.S. Environmental Protection Agency (U.S. EPA) uses the term Volatile Organic Compounds (**VOC**) and the California Air Resources Board's (CARB's) Emission Inventory Branch (EIB) uses the term Reactive Organic Gases (**ROG**) to essentially define the same thing. There are minor deviations between compounds that define each term however for purposes of this study we will assume they are essentially the same due to the fact that SCAQMD interchanges these words and because URBEMIS2007 directly calculates ROG in place of VOC.

2.6 Local Air Quality

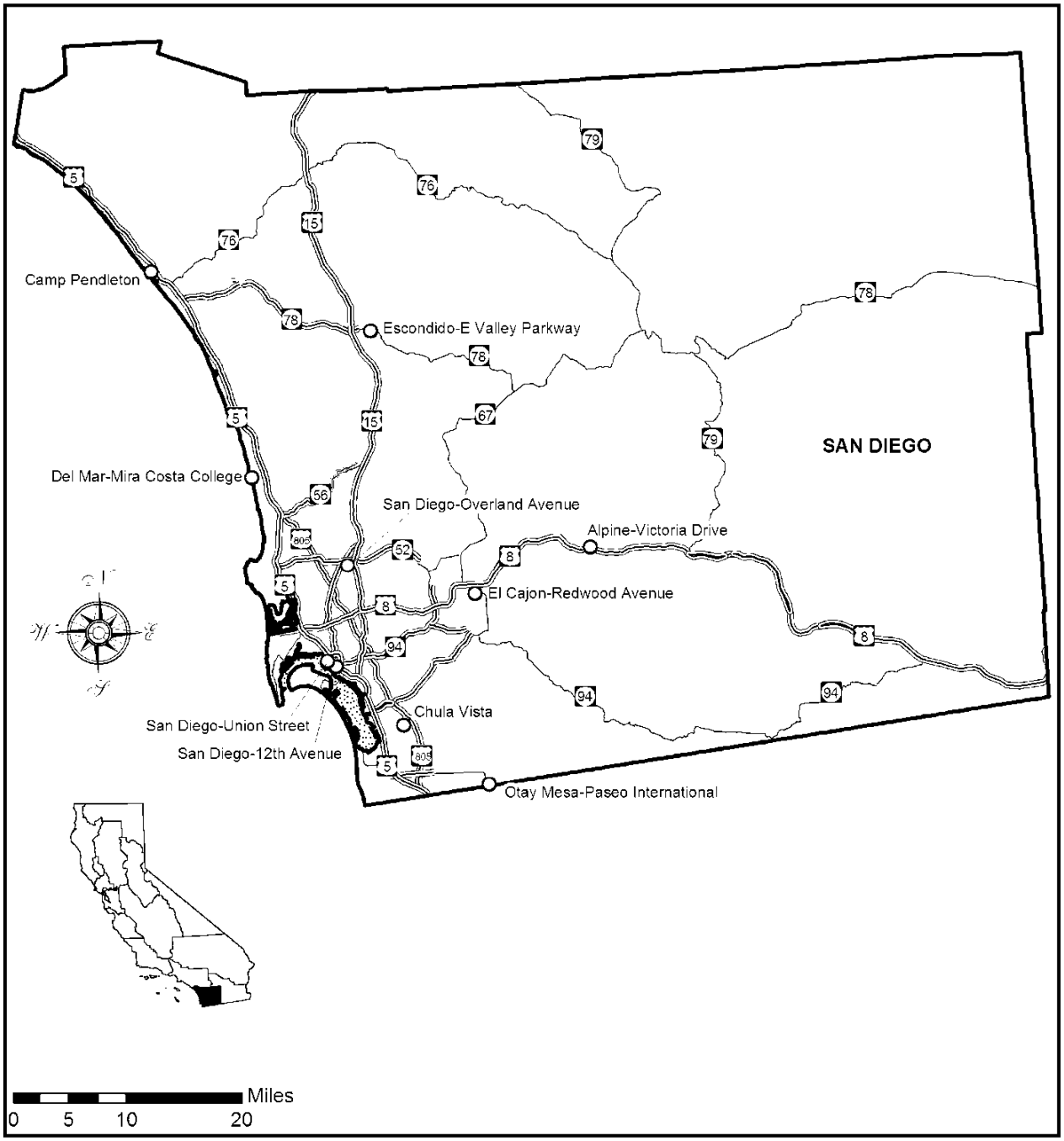
Criteria pollutants are measured continuously throughout the San Diego Air Basin. This data is used to track ambient air quality patterns throughout the County. As mentioned earlier, this data is also used to determine attainment status when compared to the NAAQS and CAAQS. The SDAPCD is responsible for monitoring and reporting monitoring data. The District operates 10 monitoring sites, which collect data on criteria pollutants. The proposed development project is closest to the Escondido Monitoring station which is located approximately 15.3-miles from the Project site. Table 2.4 on the following page identifies the criteria pollutants monitored at the aforementioned station.

Four additional sites collect meteorological data which is used by the District to assist with pollutant forecasting, data analysis and characterization of pollutant transport. Figure 2-A shows the relative locations of the monitoring sites. SDAPCD published the five year air quality summary for all of the monitoring stations within the San Diego basin (Source: http://www.arb.ca.gov/adam/topfour/topfourdisplay.php).

Table 2.4: Three-Year Ambient Air Quality Summary near the Project Site

Pollutant	Closest Recorded Ambient Monitoring Site	Averaging Time	CAAQS	NAAQS	2009	2010	2011
O3 (ppm)	Escondido-E Valley Parkway	1 Hour	0.09 ppm	-	0.093	0.105	0.098
	Escondido-E Valley Parkway	8 Hour	0.070 ppm	0.075 ppm	0.080	0.084	0.089
PM10 (µg/m3)	Escondido-E Valley Parkway	24 Hour	50 µg/m3	150 µg/m3	74	43	40
	Escondido-E Valley Parkway	Annual Arithmetic Mean	20 µg/m3	-	24.9	20.9	18.8
PM2.5 (µg/m3)	Escondido-E Valley Parkway	24 Hour	-	35 µg/m3	78.4	52.2	67.7
	Escondido-E Valley Parkway	Annual Arithmetic Mean	12 µg/m3	15 µg/m3	13.4	12.2	12.2
NO2 (ppm)	Escondido-E Valley Parkway	Annual Arithmetic Mean	0.030 ppm	0.053 ppm	0.016	0.014	0.013
	Escondido-E Valley Parkway	1 Hour	0.18 ppm	-	0.073	0.064	0.062
CO (ppm)	Escondido-E Valley Parkway	8 Hour	9 ppm	9 ppm	3.24	2.46	2.20
	Escondido-E Valley Parkway	1 Hour	20 ppm	35 ppm	4.4	3.9	3.5

Figure 2-A: Ambient Air Quality Monitoring Stations within SDAB – CARB



3.0 METHODOLOGY

3.1 Construction Emissions Calculations

Air quality impacts related to construction will be calculated using the latest URBEMIS2007 air quality model, which was developed by the California Air Resource Board (CARB). URBEMIS2007 has been approved by SDAPCD and the County of San Diego for construction emission calculations. URBEMIS incorporates emission factors from the EMFAC2007 model for on-road vehicle emissions and the OFFROAD2007 model for off-road vehicle emissions. The URBEMIS input/output model is shown in ***Attachment A*** at the end of this report.

Cancer Risk will be determined for Diesel Particulate Matter (DPM) at the point of maximum exposure. The SCREEN3 dispersion model can be used to determine the concentration for air pollutants at any location near the pollutant generator. Additionally, the model will predict the maximum exposure distance and concentration. The SCREEN3 input/output files are shown in ***Attachment B*** of this report. The worst case exhaust emissions generated from the Project from construction equipment was utilized and calculated within the URBEMIS2007 model. The worst case cancer risk if exposed to a DPM dose for 70 years is defined as:

$$CR_{DPM} = C_{DPM} \times URF_{DPM}$$

Where, CR_{DPM} = Cancer risk from diesel particulate matter (probability on an individual developing Cancer

C_{DPM} = Annual average DPM concentration in µg/m3 (SCREEN3 predicts a 1-hr concentration and is corrected to a annual average by multiplying the 1-hr average by 0.08 (Source: U.S. EPA, 1992; ARB, 1994)

URF_{DPM} = The inhalation unit risk factor for diesel particulate was established by ARB as 300 in one million per continuous exposure of 1 µg/m3 of DPM over a 70-year period.

(Source: Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling emissions for CEQA Air Quality Analysis (August 2003))

3.2 Construction Assumptions

The Project construction would be expected to take approximately 14 months to complete. Existing onsite structures will be demolished within roughly nine days. The grading operations are expected to take up to six months. After grading is complete trenching and paving operations would take an additional two months and then the residential buildings will be built out over the following 6-months. The entire build out of the Project would be expected no sooner than August 2015 which would encompass about 314 workdays. Table

3.1 on the following page shows the expected timeframes for the construction processes for all the project infrastructure, facilities, improvements and residential structures at the proposed project location.

Table 3.1: Expected Construction Equipment

Equipment Identification	Proposed Start	Proposed Completion	Construction Days	Quantity
Demolition	5/20/2014	5/31/2014	9	
Excavators				1
Mass Site Grading	6/1/2014	12/15/2014	141	
Scrapers				3
Tractors/Loaders/Backhoes				3
Excavators				1
Graders				1
Rubber Tired Dozers				1
Water Trucks				1
Trenching	12/16/2014	1/16/2015	24	
Excavators				2
Other General Industrial Equipment				1
Tractors/Loaders/Backhoes				1
Paving	1/17/2015	2/10/2015	17	
Paving Equipment				2
Rollers				2
Pavers				1
Building Construction	2/11/2015	7/31/2015	123	
Forklift				3
Tractor/loader/backhoe			(Total: 314 Days)	3
Crane				1
Generator				1
Welders				1
Architectural Coating	5/15/2015	7/31/2015	56 (Overlapped with Building Construction)	

This equipment list is based upon equipment inventory within URBEMIS2007. The quantity and types are based upon assumptions from Projects of similar size and scope in the County of San Diego.

3.3 Operational Emissions

Operational Emissions from daily trips and area sources will be calculated utilizing the URBEMIS 2007 model. Emissions from both daily trips and area sources will be considered additive and combined to show total Project related emission outputs.

URBEMIS 2007 utilizes the EMFAC2007 model for daily trips, which calculates emission rates from all motor vehicles, such as passenger cars to heavy-duty trucks, operating on

highways, freeways and local roads in California and reflects CARB's current understanding of how vehicles travel and how much they pollute. Table 3.2 on the following page shows the project trip breakdown.

Table 3.2: Proposed Project Trip Breakdown

Vehicle Description	Project Percentage
Light Auto	47.8
Light Truck < 3,750 lbs	10.9
Light Truck 3,751 – 5,750 lbs	22.1
Medium Truck 5,751 – 8,500 lbs	9.9
Light-Heavy Truck 8,501 – 10,000 lbs	1.8
Light-Heavy Truck 10,001 – 14,000 lbs	0.7
Medium-Heavy Truck 14,001 – 33,000 lbs	1.0
Heavy-Heavy Truck 33,001 – 60,000 lbs	0.9
Other Bus	0.1
Urban Bus	0.1
Motorcycle	3.5
School Bus	0.1
Motor Home	1.1

In the EMFAC model, the emission rates are multiplied with vehicle activity data provided by the regional transportation agencies to calculate the statewide or regional emission inventories. An emission inventory is the emission rate (e.g., grams per pollutant emitted over a mile) and vehicle activity (e.g., miles driven per day). Area sources originate from daily onsite uses, which require either burning fuel to generate energy (i.e. natural gas fireplaces, gas furnaces, gas water heaters and small engines) or the evaporation of organic gases such as paints (architectural coatings).

The Project traffic engineer estimated that there will be 528 daily trips which were broken down within the Project traffic study (Source: Shadow Run Ranch Traffic Impact Study, KOA Corporation 2012). These traffic numbers were utilized within the URBEMIS 2007 analysis. The model also estimates emission predictions for ROG, NO_x, CO, SO_2, PM_{10} and $PM_{2.5}$ for area source assumptions. It is assumed that 100% of the facilities will have access to Natural Gas with 55% consisting of natural gas hearths, 35% wood Stoves and 10% wood fireplaces. Additionally, it was assumed that an average of 10% of the structural surface area will be re-painted each year.

3.4 Micro Scale Operational Emissions

Air pollutant emissions related to project traffic have the potential to create new, or worsen existing localized air quality violations with respect to carbon monoxide (CO). These increased carbon monoxide "Hot Spots" are determined through the utilization of the ITS Transportation Project-Level Carbon Monoxide Protocol (Caltrans 1998) as well as the County.

In the event the proposed project traffic adds vehicular trips to either an intersection that operates at LOS E or F or any intersection where the project trips re-classify the intersection level of service to LOS E or F and when peak-hour trips exceed 3,000 the Project must quantify CO levels (Source: County Of San Diego Guidelines For Determining Significance And Report Format And Content Requirements – March, 2007).

Based on the project traffic study, at no time will the project directly or cumulatively cause existing intersections within the project study area to operate at LOS E or F and would therefore not require micro-scale CO emission analysis and will not be discussed further in this report.

3.5 Odor Impacts (Onsite)

Potential onsite odor generators would include short term construction odors from activities such as paving and possibly painting as well as odors from agricultural uses. Odors created during short term construction activities would most likely be from placing asphalt which has a slight odor from the bitumen and solvents used within hot asphalt. Asphalt operations are fairly quick and are not expected to cause significant long-term odor impacts.

Agricultural uses may produce odors which can be offensive to some individuals but would be consistent with this type of project in a rural setting such as is proposed. As a design feature of this project, all future residents will be provided full disclosure that every lot contains existing agriculture, and any odors associated with the continued agricultural use will be mutual and understood within the development and with existing neighbors. Given this, odors onsite generated from agricultural uses would not be considered offensive to future residents. Therefore, the Project will not have a potential to create offensive odors to any sensitive receptors onsite and would therefore not be considered an impact under CEQA. Further discussion of onsite odor impacts is not included in this report.

3.6 Odor Impacts (Offsite)

Odor producing projects from offsite sources such as the nearby Gregory Canyon Landfill or the Pala Wastewater treatment facility are expected to generate odors but odors from these facilities are not expected to reach any of the proposed uses within the Shadow Run development. This conclusion is based on the fact that odor impacts from these uses would be limited by regulatory oversight from SDAPCD. These facilities would be required to mitigate odors at their property boundary. Also, a large buffer of distance (over 1 mile) and intervening topography separate those operations from the Shadow Run development project. Furthermore the focused air quality study for the Gregory Canyon Landfill indicated that odors would be minimized by covering all waste with soil immediately after waste is dropped off and would therefore not create odor impacts. (Source: Gregory Canyon Landfill/Final EIR – December 2002).

4.0 FINDINGS

4.1 Construction Findings

The Project construction would be expected to take approximately 14 months to complete. Existing onsite structures will be demolished within roughly nine days. The grading operations are expected to take up to six months. Grading operations are anticipated to occur at a daily intensity of 457 cubic yards on average. After grading is complete trenching and paving operations would take an additional two months and then the residential buildings will be built out over the following 6-months. The entire build out of the Project would be expected no sooner than August 2014. Additionally, architectural coatings could be applied concurrent to building construction. A summary of the construction emissions is shown in Table 4.1 below.

Table 4.1: Expected Construction Emissions Summary

Year	ROG	NO_x	CO	SO_2	PM_{10} (Dust)	PM_{10} (Exhaust)	PM_{10} (Total)	$PM_{2.5}$ (Dust)	$PM_{2.5}$ (Exhaust)	$PM_{2.5}$ (Total)
2014 (lb/day) Unmitigated	8.93	72.06	40.03	0.00	133.95	3.23	137.17	27.98	2.97	30.94
Significance Threshold (lb/day)	75	250	550	250	-	-	100	-	-	55
Exceeds Screening Threshold	No	No	No	No	-	-	**Yes**	-	-	No
2014 (lb/day) Mitigated	8.93	72.06	40.03	0.00	60.29	3.23	63.51	12.59	2.97	15.56
Exceeds Screening Threshold	No	No	No	No	-	-	No	-	-	No
2015 (lb/day) Unmitigated	43.81	17.09	19.17	0.01	0.06	1.22	1.25	0.02	1.12	1.13
Exceeds Screening Threshold	No	No	No	No	-	-	No	-	-	No

Given these findings PM_{10} emissions would exceed SDAPCD air quality standards between the start of the Project's grading period until the end of the grading period and would require mitigation to comply during these activities. This impact would be limited to grading and trenching only. It should be noted that construction assumptions are worst case with total grading concentration occurring within one phase only. It was found that the following mitigation measures would be required to reduce PM_{10} impacts to a level below significance:

1. *Apply water during grading/grubbing activities to all active disturbed areas at least twice daily (Assuming a 51% control efficiency).*
2. *Apply water to all onsite unpaved roadways at least two times daily (Assuming 51% control efficiency).*

4.2 Health Risk

Based upon the air quality modeling as discussed in Section 4.1 above, it was found that worst-case PM10 from exhaust would range from 0.23 to 3.23. Since construction emissions would be spread out over 314 days, the average emission rate (2.00) should be utilized for the total duration of roughly 314 – 8-hour days. Given this, the expected emission rate would be 0.03146 grams per second DPM during the construction day which would be expected to be distributed over project area of 110 acres. Converting pounds (lbs) per day to grams per second is shown below.

$$\frac{2.00\frac{lb}{day}*453\frac{grams}{lb}}{28{,}800\frac{\text{sec}onds}{Constructionday}}=0.03146\frac{grams}{\text{sec}ond}$$

The average emission rate over the grading area is 7.0668 x 10^{-8} g/m^2/s, which was calculated as follows:

$$\frac{0.03146\frac{grams}{\text{sec}ond}}{110acres*4{,}046\frac{meters^2}{acre}}=7.0668*10^{-8}\frac{\frac{grams}{meters^2}}{\text{sec}ond}$$

Utilizing the SCREEN3 dispersion model, we find that the peak maximum 1-hr concentration is 6.454 µg/m3 during the worst-case construction period. Converting the peak 1-hr concentration to an annual concentration reduces the concentration to 0.5163 µg/m3 Therefore, utilizing the risk equation identified above and calculating that the cancer risk over a 70 year continuous dose would be:

$$CR_{DPM\text{-}70yr\ dose} = 0.0003 \times 0.5163 = 0.000155$$

The proposed project is expected to generate maximum DPM during grading of the project, which is expected to be approximately 314 workdays. This would work out to 104.67-24 hr days out of 70 years or 104.67/25,550 or 0.0041 times the CR_{DPM}. If one million people were exposed to the maximum DPM for the duration of grading, the estimated increased cancer risk could be:

0.0041 x 0.000155 x 1,000,000 = 0.6345 individuals per million

The maximum DPM is projected to occur approximately 498 meters from the geometric center of the project. The numerical number of individuals exposed to DPM of this concentration from the project would be less than one in one million and would not be considered an impact. Sensitive receptors including the existing residential development onsite would not be exposed to DPM in excess of that predicted in this analysis as all receptors either within or beyond the 498 meter radius would have a CR of less than 0.6345 individuals per million.

The nearest offsite residential receptor is roughly 180 meters from the project site as identified in Figure 1-B on Page 5 of this report. At this distance, the peak maximum 1-hr concentration would be 5.168 µg/m^3 during grading having an annual concentration of 0.4134 µg/m^3. Using the same methodology above, the cancer risk after correcting for construction duration would be 0.5081 which is less than one in one million and would not be considered an impact. The discreet modeling for this distance is also shown in the attached SCREEN 3 Model.

4.3 Operational Findings

Based on the Project's traffic study the proposed Project could add as many as 528 daily trips once the Project is fully operational sometime in the year 2014. Specific trip characteristics are not expected to be as high as predicted in URBEMIS2007 given the relative close distances to the Casino and its amenities. However, for purposes of this analysis, the expected daily pollutant generation can be calculated utilizing the rural trip assumptions within URBEMIS2007.

The expected daily pollutant generation can be calculated utilizing the product of the average daily miles traveled and the expected emissions inventory calculated by EMFAC2007; URBEMIS2007 performs this calculation. The daily pollutants calculated for summer and winter are shown in Tables 4.2 and 4.3 on the following Page. All mitigation recommendations were based on URBEMIS 2007 default mitigation measures.

Table 4.2: Expected Summer Daily Pollutant Generation

	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Area Source Emission Estimates (Lb/Day)	3.17	0.57	2.19	0.00	0.01	0.01
Operational Vehicle Emissions (Lb/Day)	3.21	5.25	37.90	0.05	9.72	1.88
Total (Lb/Day)	6.38	5.82	40.09	0.05	9.73	1.89
SCAQMD Thresholds	75	250	550	250	100	55
Significant?	No	No	No	No	No	No
Daily pollutant generation assumes trip distances within URBEMIS 2007						

Table 4.3: Expected Winter Daily Pollutant Generation

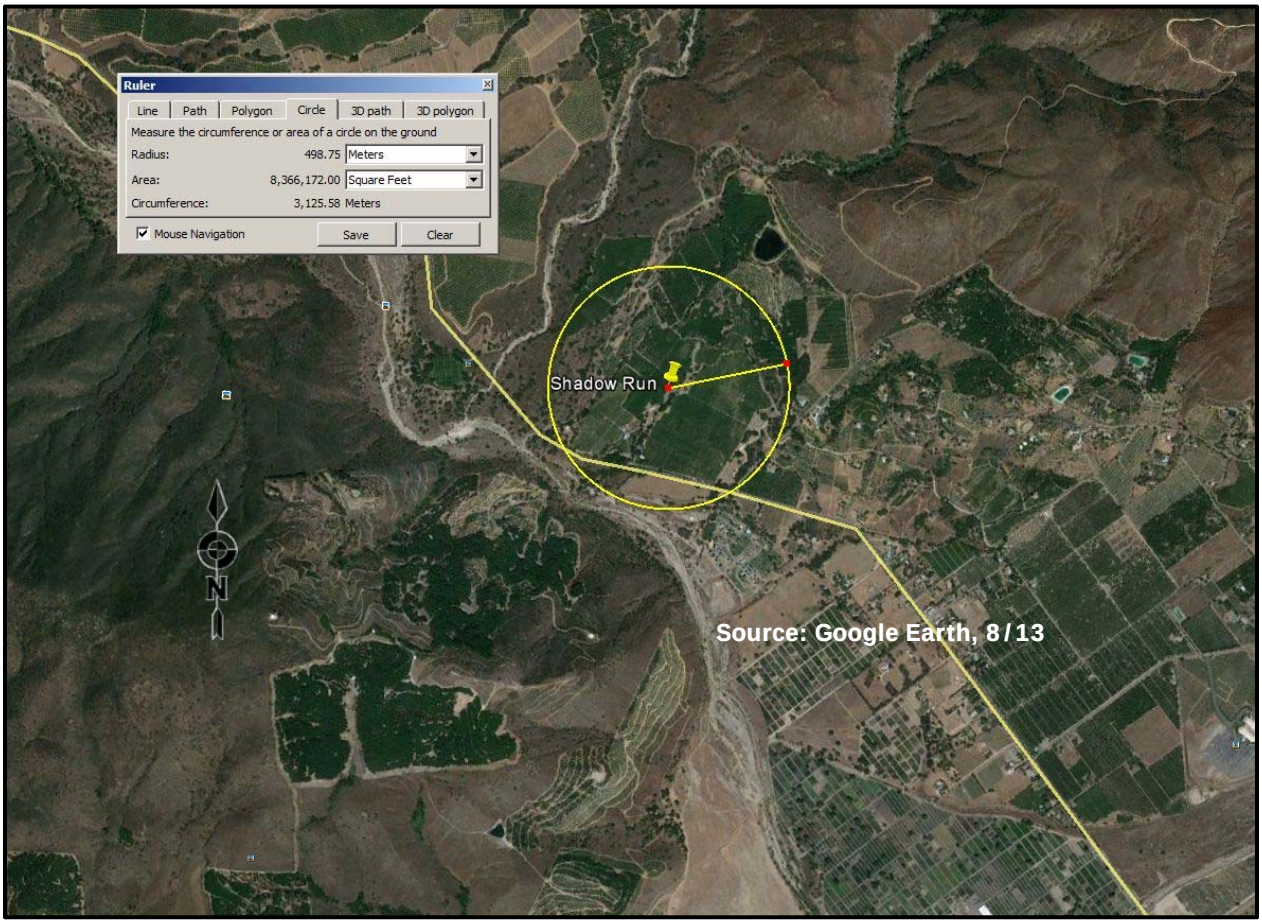
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Area Source Emission Estimates (Lb/Day)	11.67	1.62	46.86	0.15	7.49	7.21
Operational Vehicle Emissions (Lb/Day)	3.71	6.32	42.04	0.05	9.72	1.88
Total (Lb/Day)	15.38	7.94	88.90	0.20	17.21	9.09
SCAQMD Thresholds	75	250	550	250	100	55
Significant?	No	No	No	No	No	No
Daily pollutant generation assumes trip distances within URBEMIS 2007						

4.4 Cumulative Impact Findings

The proposed A70 zoned project does not propose increasing density to beyond what is currently allowed within the general plan and therefore is consistent with both the RAQS and the SIP.

Furthermore, from a health risk perspective, there are no identified projects within the worst case construction emission radius as predicted by the SCREEN3 model. Figure 4-A on the following page shows the worst case 498 meters radius for a visual understanding of this concept. Since no overlapping construction emissions are expected the worst case health risk probabilities are not expected to increase above 10 in one million and would therefore not be considered an impact.

Figure 4-A: Worst Case DPM Construction Contour



As identified in Section 4.1 above, a direct impact to PM10 emissions is expected in the first year of construction but is fully mitigable by applying water to all construction or disturbed areas including roads twice daily. The mitigation plan as discussed will also mitigate any cumulative impacts to below significance due to the fact that future construction projects are not expected to overlap.

4.5 Conclusion of Findings

Based upon our analysis, short-term significant construction impacts for PM_{10} are expected but can be fully mitigated to less than significant. During the construction phase of the project, the following mitigation strategy must be incorporated into the grading plans:

1. *Apply water during grading/grubbing activities to all active disturbed areas at least twice daily (Assuming a 51% control efficiency).*

2. *Apply water to all onsite unpaved roadways at least two times daily (Assuming 51% control efficiency).*

Also, no concurrent large projects are expected to be under construction simultaneously to the proposed project so cumulative construction impacts are not expected. Furthermore, since the project does not create any direct impacts and does not seek to change zoning designations, the project would be consistent with the RAQS and SIP.

The proposed project would not be exposed to offensive odors from offsite sources such as the Pala Wastewater Treatment Plant or the Gregory Canyon Landfill due to the fact that the proposed projects are over one mile away and are separated by significant intervening topography. It should be noted however, the County of San Diego will require full disclosure of these uses to all perspective buyers.

5.0 CERTIFICATIONS

The contents of this report represent an accurate depiction of the air quality environment and impacts within and surrounding the proposed Shadow Run Ranch development. This report was prepared utilizing the latest emission rates and reduction methodologies. This report was prepared by Jeremy Louden; a County approved CEQA Consultant for Air Quality.

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Date May 12, 2014

ATTACHMENT A

URBEMIS 2007

5/4/2014 1:25:57 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Users\RST\Google Drive\Shadow Run\5-4-14\Shadow Run 5-14.urb924

Project Name: Shadow Run Ranch

Project Location: California State-wide

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

5/4/2014 1:25:57 PM

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2014 TOTALS (lbs/day unmitigated)	8.93	72.06	40.03	0.00	133.95	3.23	137.17	27.98	2.97	30.94	9,058.18
2014 TOTALS (lbs/day mitigated)	8.93	72.06	40.03	0.00	60.29	3.23	63.51	12.59	2.97	15.56	9,058.18
2015 TOTALS (lbs/day unmitigated)	43.81	17.09	19.17	0.01	0.06	1.22	1.25	0.02	1.12	1.13	3,320.94
2015 TOTALS (lbs/day mitigated)	43.81	17.09	19.17	0.01	0.06	1.22	1.25	0.02	1.12	1.13	3,320.94

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	3.17	0.57	2.19	0.00	0.01	0.01	706.97

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	3.21	5.25	37.90	0.05	9.72	1.88	4,987.43

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	6.38	5.82	40.09	0.05	9.73	1.89	5,694.40

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

Time Slice 5/20/2014-5/30/2014 Active Days: 9	0.58	4.38	3.58	0.00	0.47	0.23	0.70	0.10	0.21	0.31	643.19
Demolition 05/20/2014-05/31/2014	0.58	4.38	3.58	0.00	0.47	0.23	0.70	0.10	0.21	0.31	643.19
Fugitive Dust	0.00	0.00	0.00	0.00	0.47	0.00	0.47	0.10	0.00	0.10	0.00
Demo Off Road Diesel	0.56	4.05	3.24	0.00	0.00	0.22	0.22	0.00	0.20	0.20	547.09
Demo On Road Diesel	0.02	0.31	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	62.29
Demo Worker Trips	0.01	0.02	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.81
Time Slice 6/2/2014-12/15/2014 Active Days: 141	8.93	**72.06**	**40.03**	0.00	**133.95**	**3.23**	**137.17**	**27.98**	**2.97**	**30.94**	**9,058.18**
Mass Grading 06/01/2014-12/15/2014	8.93	72.06	40.03	0.00	133.95	3.23	137.17	27.98	2.97	30.94	9,058.18
Mass Grading Dust	0.00	0.00	0.00	0.00	133.93	0.00	133.93	27.97	0.00	27.97	0.00
Mass Grading Off Road Diesel	8.86	71.89	37.66	0.00	0.00	3.22	3.22	0.00	2.96	2.96	8,720.07
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.07	0.18	2.37	0.00	0.02	0.01	0.03	0.01	0.01	0.02	338.12
Time Slice 12/16/2014-12/31/2014 Active Days: 12	2.03	15.78	11.06	0.00	0.01	0.80	0.81	0.00	0.74	0.74	2,177.34
Trenching 12/16/2014-01/16/2015	2.03	15.78	11.06	0.00	0.01	0.80	0.81	0.00	0.74	0.74	2,177.34
Trenching Off Road Diesel	2.00	15.71	10.11	0.00	0.00	0.80	0.80	0.00	0.73	0.73	2,042.10
Trenching Worker Trips	0.03	0.07	0.95	0.00	0.01	0.00	0.01	0.00	0.00	0.01	135.25
Time Slice 1/1/2015-1/16/2015 Active Days: 12	1.88	14.16	10.92	0.00	0.01	0.75	0.75	0.00	0.69	0.69	2,177.31
Trenching 12/16/2014-01/16/2015	1.88	14.16	10.92	0.00	0.01	0.75	0.75	0.00	0.69	0.69	2,177.31
Trenching Off Road Diesel	1.85	14.10	10.05	0.00	0.00	0.74	0.74	0.00	0.68	0.68	2,042.10
Trenching Worker Trips	0.03	0.06	0.88	0.00	0.01	0.00	0.01	0.00	0.00	0.01	135.21

Time Slice 1/19/2015-2/10/2015 Active Days: 17	4.12	16.27	11.06	0.01	0.03	1.22	1.25	0.01	1.12	1.13	2,155.90
Asphalt 01/17/2015-02/10/2015	4.12	16.27	11.06	0.01	0.03	1.22	1.25	0.01	1.12	1.13	2,155.90
Paving Off-Gas	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.12	13.07	8.93	0.00	0.00	1.11	1.11	0.00	1.02	1.02	1,272.41
Paving On Road Diesel	0.22	3.11	1.03	0.01	0.03	0.10	0.13	0.01	0.10	0.10	714.48
Paving Worker Trips	0.03	0.08	1.10	0.00	0.01	0.01	0.01	0.00	0.00	0.01	169.01
Time Slice 2/11/2015-5/14/2015 Active Days: 67	2.90	17.06	18.76	0.01	0.05	1.07	1.12	0.02	0.98	1.00	3,256.40
Building 02/11/2015-07/31/2015	2.90	17.06	18.76	0.01	0.05	1.07	1.12	0.02	0.98	1.00	3,256.40
Building Off Road Diesel	2.69	16.17	12.80	0.00	0.00	1.03	1.03	0.00	0.94	0.94	2,259.28
Building Vendor Trips	0.04	0.48	0.39	0.00	0.01	0.02	0.02	0.00	0.02	0.02	140.44
Building Worker Trips	0.17	0.41	5.56	0.01	0.05	0.03	0.07	0.02	0.02	0.04	856.68
Time Slice 5/15/2015-7/31/2015 Active Days: 56	**43.81**	17.09	19.17	**0.01**	0.06	1.07	1.13	0.02	0.98	1.00	3,320.94
Building 02/11/2015-07/31/2015	2.90	17.06	18.76	0.01	0.05	1.07	1.12	0.02	0.98	1.00	3,256.40
Building Off Road Diesel	2.69	16.17	12.80	0.00	0.00	1.03	1.03	0.00	0.94	0.94	2,259.28
Building Vendor Trips	0.04	0.48	0.39	0.00	0.01	0.02	0.02	0.00	0.02	0.02	140.44
Building Worker Trips	0.17	0.41	5.56	0.01	0.05	0.03	0.07	0.02	0.02	0.04	856.68
Coating 05/15/2015-07/31/2015	40.91	0.03	0.42	0.00	0.00	0.00	0.01	0.00	0.00	0.00	64.54
Architectural Coating	40.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.03	0.42	0.00	0.00	0.00	0.01	0.00	0.00	0.00	64.54

Phase Assumptions

Phase: Demolition 5/20/2014 - 5/31/2014 - Demo of onsite buildings

Building Volume Total (cubic feet): 10000

Building Volume Daily (cubic feet): 1113.94

On Road Truck Travel (VMT): 15.47

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

Phase: Mass Grading 6/1/2014 - 12/15/2014 - Mass Grading

Total Acres Disturbed: 110

Maximum Daily Acreage Disturbed: 8

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 457 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

3 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Trenching 12/16/2014 - 1/16/2015 - Trenching

Off-Road Equipment:

2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Paving 1/17/2015 - 2/10/2015 - Paving

Acres to be Paved: 12

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 2/11/2015 - 7/31/2015 - Building Construction

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 5/15/2015 - 7/31/2015 - Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 5/20/2014-5/30/2014 Active Days: 9	0.58	4.38	3.58	0.00	0.47	0.23	0.70	0.10	0.21	0.31	643.19
Demolition 05/20/2014-05/31/2014	0.58	4.38	3.58	0.00	0.47	0.23	0.70	0.10	0.21	0.31	643.19
Fugitive Dust	0.00	0.00	0.00	0.00	0.47	0.00	0.47	0.10	0.00	0.10	0.00
Demo Off Road Diesel	0.56	4.05	3.24	0.00	0.00	0.22	0.22	0.00	0.20	0.20	547.09
Demo On Road Diesel	0.02	0.31	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	62.29
Demo Worker Trips	0.01	0.02	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.81

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Time Slice 6/2/2014-12/15/2014 Active Days: 141	8.93	**72.06**	**40.03**	0.00	60.29	**3.23**	63.51	12.59	**2.97**	15.56	**9,058.18**
Mass Grading 06/01/2014-12/15/2014	8.93	72.06	40.03	0.00	60.29	3.23	63.51	12.59	2.97	15.56	9,058.18
Mass Grading Dust	0.00	0.00	0.00	0.00	60.27	0.00	60.27	12.59	0.00	12.59	0.00
Mass Grading Off Road Diesel	8.86	71.89	37.66	0.00	0.00	3.22	3.22	0.00	2.96	2.96	8,720.07
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.07	0.18	2.37	0.00	0.02	0.01	0.03	0.01	0.01	0.02	338.12
Time Slice 12/16/2014-12/31/2014 Active Days: 12	2.03	15.78	11.06	0.00	0.01	0.80	0.81	0.00	0.74	0.74	2,177.34
Trenching 12/16/2014-01/16/2015	2.03	15.78	11.06	0.00	0.01	0.80	0.81	0.00	0.74	0.74	2,177.34
Trenching Off Road Diesel	2.00	15.71	10.11	0.00	0.00	0.80	0.80	0.00	0.73	0.73	2,042.10
Trenching Worker Trips	0.03	0.07	0.95	0.00	0.01	0.00	0.01	0.00	0.00	0.01	135.25
Time Slice 1/1/2015-1/16/2015 Active Days: 12	1.88	14.16	10.92	0.00	0.01	0.75	0.75	0.00	0.69	0.69	2,177.31
Trenching 12/16/2014-01/16/2015	1.88	14.16	10.92	0.00	0.01	0.75	0.75	0.00	0.69	0.69	2,177.31
Trenching Off Road Diesel	1.85	14.10	10.05	0.00	0.00	0.74	0.74	0.00	0.68	0.68	2,042.10
Trenching Worker Trips	0.03	0.06	0.88	0.00	0.01	0.00	0.01	0.00	0.00	0.01	135.21
Time Slice 1/19/2015-2/10/2015 Active Days: 17	4.12	16.27	11.06	0.01	0.03	1.22	1.25	0.01	1.12	1.13	2,155.90
Asphalt 01/17/2015-02/10/2015	4.12	16.27	11.06	0.01	0.03	1.22	1.25	0.01	1.12	1.13	2,155.90
Paving Off-Gas	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.12	13.07	8.93	0.00	0.00	1.11	1.11	0.00	1.02	1.02	1,272.41
Paving On Road Diesel	0.22	3.11	1.03	0.01	0.03	0.10	0.13	0.01	0.10	0.10	714.48
Paving Worker Trips	0.03	0.08	1.10	0.00	0.01	0.01	0.01	0.00	0.00	0.01	169.01

Time Slice 2/11/2015-5/14/2015 Active Days: 67	2.90	17.06	18.76	0.01	0.05	1.07	1.12	0.02	0.98	1.00	3,256.40
Building 02/11/2015-07/31/2015	2.90	17.06	18.76	0.01	0.05	1.07	1.12	0.02	0.98	1.00	3,256.40
Building Off Road Diesel	2.69	16.17	12.80	0.00	0.00	1.03	1.03	0.00	0.94	0.94	2,259.28
Building Vendor Trips	0.04	0.48	0.39	0.00	0.01	0.02	0.02	0.00	0.02	0.02	140.44
Building Worker Trips	0.17	0.41	5.56	0.01	0.05	0.03	0.07	0.02	0.02	0.04	856.68
Time Slice 5/15/2015-7/31/2015 Active Days: 56	**43.81**	17.09	19.17	**0.01**	0.06	1.07	1.13	0.02	0.98	1.00	3,320.94
Building 02/11/2015-07/31/2015	2.90	17.06	18.76	0.01	0.05	1.07	1.12	0.02	0.98	1.00	3,256.40
Building Off Road Diesel	2.69	16.17	12.80	0.00	0.00	1.03	1.03	0.00	0.94	0.94	2,259.28
Building Vendor Trips	0.04	0.48	0.39	0.00	0.01	0.02	0.02	0.00	0.02	0.02	140.44
Building Worker Trips	0.17	0.41	5.56	0.01	0.05	0.03	0.07	0.02	0.02	0.04	856.68
Coating 05/15/2015-07/31/2015	40.91	0.03	0.42	0.00	0.00	0.00	0.01	0.00	0.00	0.00	64.54
Architectural Coating	40.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.03	0.42	0.00	0.00	0.00	0.01	0.00	0.00	0.00	64.54

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 6/1/2014 - 12/15/2014 - Mass Grading

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.04	0.55	0.23	0.00	0.00	0.00	703.82
Hearth - No Summer Emissions							
Landscape	0.35	0.02	1.96	0.00	0.01	0.01	3.15
Consumer Products	2.15						
Architectural Coatings	0.63						
TOTALS (lbs/day, unmitigated)	3.17	0.57	2.19	0.00	0.01	0.01	706.97

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	3.21	5.25	37.90	0.05	9.72	1.88	4,987.43
TOTALS (lbs/day, unmitigated)	3.21	5.25	37.90	0.05	9.72	1.88	4,987.43

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Temperature (F): 70 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	110.00	12.00	dwelling units	44.00	528.00	5,641.20
					528.00	5,641.20

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	48.5	0.2	99.6	0.2
Light Truck < 3750 lbs	10.8	0.9	95.4	3.7
Light Truck 3751-5750 lbs	21.9	0.5	99.5	0.0
Med Truck 5751-8500 lbs	9.7	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.7	0.0	76.5	23.5
Lite-Heavy Truck 10,001-14,000 lbs	0.7	0.0	57.1	42.9
Med-Heavy Truck 14,001-33,000 lbs	1.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.9	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	3.5	48.6	51.4	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.0	0.0	90.0	10.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

Operational Changes to Defaults

The urban/rural selection has been changed from Urban to Rural

Ambient summer temperature changed from 85 degrees F to 70 degrees F

Ambient winter temperature changed from 40 degrees F to 50 degrees F

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Users\RST\Google Drive\Shadow Run\5-4-14\Shadow Run 5-14.urb924

Project Name: Shadow Run Ranch

Project Location: California State-wide

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

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Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2014 TOTALS (lbs/day unmitigated)	8.93	72.06	40.03	0.00	133.95	3.23	137.17	27.98	2.97	30.94	9,058.18
2014 TOTALS (lbs/day mitigated)	8.93	72.06	40.03	0.00	60.29	3.23	63.51	12.59	2.97	15.56	9,058.18
2015 TOTALS (lbs/day unmitigated)	43.81	17.09	19.17	0.01	0.06	1.22	1.25	0.02	1.12	1.13	3,320.94
2015 TOTALS (lbs/day mitigated)	43.81	17.09	19.17	0.01	0.06	1.22	1.25	0.02	1.12	1.13	3,320.94

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	11.67	1.62	46.86	0.15	7.49	7.21	2,184.28

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	3.71	6.32	42.04	0.05	9.72	1.88	4,917.25

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	15.38	7.94	88.90	0.20	17.21	9.09	7,101.53

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

Time Slice 5/20/2014-5/30/2014 Active Days: 9	0.58	4.38	3.58	0.00	0.47	0.23	0.70	0.10	0.21	0.31	643.19
Demolition 05/20/2014-05/31/2014	0.58	4.38	3.58	0.00	0.47	0.23	0.70	0.10	0.21	0.31	643.19
Fugitive Dust	0.00	0.00	0.00	0.00	0.47	0.00	0.47	0.10	0.00	0.10	0.00
Demo Off Road Diesel	0.56	4.05	3.24	0.00	0.00	0.22	0.22	0.00	0.20	0.20	547.09
Demo On Road Diesel	0.02	0.31	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	62.29
Demo Worker Trips	0.01	0.02	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.81
Time Slice 6/2/2014-12/15/2014 Active Days: 141	8.93	**72.06**	**40.03**	0.00	**133.95**	**3.23**	**137.17**	**27.98**	**2.97**	**30.94**	**9,058.18**
Mass Grading 06/01/2014-12/15/2014	8.93	72.06	40.03	0.00	133.95	3.23	137.17	27.98	2.97	30.94	9,058.18
Mass Grading Dust	0.00	0.00	0.00	0.00	133.93	0.00	133.93	27.97	0.00	27.97	0.00
Mass Grading Off Road Diesel	8.86	71.89	37.66	0.00	0.00	3.22	3.22	0.00	2.96	2.96	8,720.07
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.07	0.18	2.37	0.00	0.02	0.01	0.03	0.01	0.01	0.02	338.12
Time Slice 12/16/2014-12/31/2014 Active Days: 12	2.03	15.78	11.06	0.00	0.01	0.80	0.81	0.00	0.74	0.74	2,177.34
Trenching 12/16/2014-01/16/2015	2.03	15.78	11.06	0.00	0.01	0.80	0.81	0.00	0.74	0.74	2,177.34
Trenching Off Road Diesel	2.00	15.71	10.11	0.00	0.00	0.80	0.80	0.00	0.73	0.73	2,042.10
Trenching Worker Trips	0.03	0.07	0.95	0.00	0.01	0.00	0.01	0.00	0.00	0.01	135.25
Time Slice 1/1/2015-1/16/2015 Active Days: 12	1.88	14.16	10.92	0.00	0.01	0.75	0.75	0.00	0.69	0.69	2,177.31
Trenching 12/16/2014-01/16/2015	1.88	14.16	10.92	0.00	0.01	0.75	0.75	0.00	0.69	0.69	2,177.31
Trenching Off Road Diesel	1.85	14.10	10.05	0.00	0.00	0.74	0.74	0.00	0.68	0.68	2,042.10
Trenching Worker Trips	0.03	0.06	0.88	0.00	0.01	0.00	0.01	0.00	0.00	0.01	135.21

Time Slice 1/19/2015-2/10/2015 Active Days: 17	4.12	16.27	11.06	0.01	0.03	1.22	1.25	0.01	1.12	1.13	2,155.90
Asphalt 01/17/2015-02/10/2015	4.12	16.27	11.06	0.01	0.03	1.22	1.25	0.01	1.12	1.13	2,155.90
Paving Off-Gas	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.12	13.07	8.93	0.00	0.00	1.11	1.11	0.00	1.02	1.02	1,272.41
Paving On Road Diesel	0.22	3.11	1.03	0.01	0.03	0.10	0.13	0.01	0.10	0.10	714.48
Paving Worker Trips	0.03	0.08	1.10	0.00	0.01	0.01	0.01	0.00	0.00	0.01	169.01
Time Slice 2/11/2015-5/14/2015 Active Days: 67	2.90	17.06	18.76	0.01	0.05	1.07	1.12	0.02	0.98	1.00	3,256.40
Building 02/11/2015-07/31/2015	2.90	17.06	18.76	0.01	0.05	1.07	1.12	0.02	0.98	1.00	3,256.40
Building Off Road Diesel	2.69	16.17	12.80	0.00	0.00	1.03	1.03	0.00	0.94	0.94	2,259.28
Building Vendor Trips	0.04	0.48	0.39	0.00	0.01	0.02	0.02	0.00	0.02	0.02	140.44
Building Worker Trips	0.17	0.41	5.56	0.01	0.05	0.03	0.07	0.02	0.02	0.04	856.68
Time Slice 5/15/2015-7/31/2015 Active Days: 56	**43.81**	17.09	19.17	**0.01**	0.06	1.07	1.13	0.02	0.98	1.00	3,320.94
Building 02/11/2015-07/31/2015	2.90	17.06	18.76	0.01	0.05	1.07	1.12	0.02	0.98	1.00	3,256.40
Building Off Road Diesel	2.69	16.17	12.80	0.00	0.00	1.03	1.03	0.00	0.94	0.94	2,259.28
Building Vendor Trips	0.04	0.48	0.39	0.00	0.01	0.02	0.02	0.00	0.02	0.02	140.44
Building Worker Trips	0.17	0.41	5.56	0.01	0.05	0.03	0.07	0.02	0.02	0.04	856.68
Coating 05/15/2015-07/31/2015	40.91	0.03	0.42	0.00	0.00	0.00	0.01	0.00	0.00	0.00	64.54
Architectural Coating	40.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.03	0.42	0.00	0.00	0.00	0.01	0.00	0.00	0.00	64.54

Phase Assumptions

Phase: Demolition 5/20/2014 - 5/31/2014 - Demo of onsite buildings

Building Volume Total (cubic feet): 10000

Building Volume Daily (cubic feet): 1113.94

On Road Truck Travel (VMT): 15.47

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

Phase: Mass Grading 6/1/2014 - 12/15/2014 - Mass Grading

Total Acres Disturbed: 110

Maximum Daily Acreage Disturbed: 8

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 457 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

3 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Trenching 12/16/2014 - 1/16/2015 - Trenching

Off-Road Equipment:

2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Paving 1/17/2015 - 2/10/2015 - Paving

Acres to be Paved: 12

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 2/11/2015 - 7/31/2015 - Building Construction

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 5/15/2015 - 7/31/2015 - Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 5/20/2014-5/30/2014 Active Days: 9	0.58	4.38	3.58	0.00	0.47	0.23	0.70	0.10	0.21	0.31	643.19
Demolition 05/20/2014-05/31/2014	0.58	4.38	3.58	0.00	0.47	0.23	0.70	0.10	0.21	0.31	643.19
Fugitive Dust	0.00	0.00	0.00	0.00	0.47	0.00	0.47	0.10	0.00	0.10	0.00
Demo Off Road Diesel	0.56	4.05	3.24	0.00	0.00	0.22	0.22	0.00	0.20	0.20	547.09
Demo On Road Diesel	0.02	0.31	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	62.29
Demo Worker Trips	0.01	0.02	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.81

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Time Slice 6/2/2014-12/15/2014 Active Days: 141	8.93	**72.06**	**40.03**	0.00	60.29	**3.23**	63.51	12.59	**2.97**	15.56	**9,058.18**
Mass Grading 06/01/2014-12/15/2014	8.93	72.06	40.03	0.00	60.29	3.23	63.51	12.59	2.97	15.56	9,058.18
Mass Grading Dust	0.00	0.00	0.00	0.00	60.27	0.00	60.27	12.59	0.00	12.59	0.00
Mass Grading Off Road Diesel	8.86	71.89	37.66	0.00	0.00	3.22	3.22	0.00	2.96	2.96	8,720.07
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.07	0.18	2.37	0.00	0.02	0.01	0.03	0.01	0.01	0.02	338.12
Time Slice 12/16/2014-12/31/2014 Active Days: 12	2.03	15.78	11.06	0.00	0.01	0.80	0.81	0.00	0.74	0.74	2,177.34
Trenching 12/16/2014-01/16/2015	2.03	15.78	11.06	0.00	0.01	0.80	0.81	0.00	0.74	0.74	2,177.34
Trenching Off Road Diesel	2.00	15.71	10.11	0.00	0.00	0.80	0.80	0.00	0.73	0.73	2,042.10
Trenching Worker Trips	0.03	0.07	0.95	0.00	0.01	0.00	0.01	0.00	0.00	0.01	135.25
Time Slice 1/1/2015-1/16/2015 Active Days: 12	1.88	14.16	10.92	0.00	0.01	0.75	0.75	0.00	0.69	0.69	2,177.31
Trenching 12/16/2014-01/16/2015	1.88	14.16	10.92	0.00	0.01	0.75	0.75	0.00	0.69	0.69	2,177.31
Trenching Off Road Diesel	1.85	14.10	10.05	0.00	0.00	0.74	0.74	0.00	0.68	0.68	2,042.10
Trenching Worker Trips	0.03	0.06	0.88	0.00	0.01	0.00	0.01	0.00	0.00	0.01	135.21
Time Slice 1/19/2015-2/10/2015 Active Days: 17	4.12	16.27	11.06	0.01	0.03	1.22	1.25	0.01	1.12	1.13	2,155.90
Asphalt 01/17/2015-02/10/2015	4.12	16.27	11.06	0.01	0.03	1.22	1.25	0.01	1.12	1.13	2,155.90
Paving Off-Gas	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.12	13.07	8.93	0.00	0.00	1.11	1.11	0.00	1.02	1.02	1,272.41
Paving On Road Diesel	0.22	3.11	1.03	0.01	0.03	0.10	0.13	0.01	0.10	0.10	714.48
Paving Worker Trips	0.03	0.08	1.10	0.00	0.01	0.01	0.01	0.00	0.00	0.01	169.01

Time Slice 2/11/2015-5/14/2015 Active Days: 67	2.90	17.06	18.76	0.01	0.05	1.07	1.12	0.02	0.98	1.00	3,256.40
Building 02/11/2015-07/31/2015	2.90	17.06	18.76	0.01	0.05	1.07	1.12	0.02	0.98	1.00	3,256.40
Building Off Road Diesel	2.69	16.17	12.80	0.00	0.00	1.03	1.03	0.00	0.94	0.94	2,259.28
Building Vendor Trips	0.04	0.48	0.39	0.00	0.01	0.02	0.02	0.00	0.02	0.02	140.44
Building Worker Trips	0.17	0.41	5.56	0.01	0.05	0.03	0.07	0.02	0.02	0.04	856.68
Time Slice 5/15/2015-7/31/2015 Active Days: 56	**43.81**	17.09	19.17	**0.01**	0.06	1.07	1.13	0.02	0.98	1.00	3,320.94
Building 02/11/2015-07/31/2015	2.90	17.06	18.76	0.01	0.05	1.07	1.12	0.02	0.98	1.00	3,256.40
Building Off Road Diesel	2.69	16.17	12.80	0.00	0.00	1.03	1.03	0.00	0.94	0.94	2,259.28
Building Vendor Trips	0.04	0.48	0.39	0.00	0.01	0.02	0.02	0.00	0.02	0.02	140.44
Building Worker Trips	0.17	0.41	5.56	0.01	0.05	0.03	0.07	0.02	0.02	0.04	856.68
Coating 05/15/2015-07/31/2015	40.91	0.03	0.42	0.00	0.00	0.00	0.01	0.00	0.00	0.00	64.54
Architectural Coating	40.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.03	0.42	0.00	0.00	0.00	0.01	0.00	0.00	0.00	64.54

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 6/1/2014 - 12/15/2014 - Mass Grading

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.04	0.55	0.23	0.00	0.00	0.00	703.82
Hearth	8.85	1.07	46.63	0.15	7.49	7.21	1,480.46
Landscaping - No Winter Emissions							
Consumer Products	2.15						
Architectural Coatings	0.63						
TOTALS (lbs/day, unmitigated)	11.67	1.62	46.86	0.15	7.49	7.21	2,184.28

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	3.71	6.32	42.04	0.05	9.72	1.88	4,917.25
TOTALS (lbs/day, unmitigated)	3.71	6.32	42.04	0.05	9.72	1.88	4,917.25

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Temperature (F): 50 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	110.00	12.00	dwelling units	44.00	528.00	5,641.20
					528.00	5,641.20

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	48.5	0.2	99.6	0.2
Light Truck < 3750 lbs	10.8	0.9	95.4	3.7
Light Truck 3751-5750 lbs	21.9	0.5	99.5	0.0
Med Truck 5751-8500 lbs	9.7	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.7	0.0	76.5	23.5
Lite-Heavy Truck 10,001-14,000 lbs	0.7	0.0	57.1	42.9
Med-Heavy Truck 14,001-33,000 lbs	1.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.9	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	3.5	48.6	51.4	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.0	0.0	90.0	10.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

Operational Changes to Defaults

The urban/rural selection has been changed from Urban to Rural

Ambient summer temperature changed from 85 degrees F to 70 degrees F

Ambient winter temperature changed from 40 degrees F to 50 degrees F

ATTACHMENT B

SCREEN3

05/04/14
20:13:53

```
 ***  SCREEN3 MODEL RUN  ***
 *** VERSION DATED 96043 ***

Shadow Run 5-4-14

SIMPLE TERRAIN INPUTS:
   SOURCE TYPE                =         AREA
   EMISSION RATE (G/(S-M**2))  =      .706680E-07
   SOURCE HEIGHT (M)          =       3.0000
   LENGTH OF LARGER SIDE (M)   =     667.1980
   LENGTH OF SMALLER SIDE (M)  =     667.1980
   RECEPTOR HEIGHT (M)        =       1.5000
   URBAN/RURAL OPTION         =        RURAL
THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

   MODEL ESTIMATES DIRECTION TO MAX CONCENTRATION


BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .000 M**4/S**2.

*** FULL METEOROLOGY ***

**********************************
*** SCREEN AUTOMATED DISTANCES ***
**********************************

*** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

  DIST     CONC             U10M   USTK  MIX HT   PLUME  MAX DIR
   (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   (DEG)
-------  ----------  ----  -----  -----  ------  ------  -------
    10.   4.131        6     1.0    1.0 10000.0    3.00     44.
   100.   4.709        6     1.0    1.0 10000.0    3.00     45.
   200.   5.275        6     1.0    1.0 10000.0    3.00     45.
   300.   5.777        6     1.0    1.0 10000.0    3.00     45.
   400.   6.228        6     1.0    1.0 10000.0    3.00     45.
   500.   6.453        6     1.0    1.0 10000.0    3.00     45.
   600.   5.695        6     1.0    1.0 10000.0    3.00     45.
   700.   4.978        6     1.0    1.0 10000.0    3.00     45.
   800.   4.428        6     1.0    1.0 10000.0    3.00     45.
   900.   4.008        6     1.0    1.0 10000.0    3.00     45.
  1000.   3.676        6     1.0    1.0 10000.0    3.00     45.
  1100.   3.411        6     1.0    1.0 10000.0    3.00     45.
  1200.   3.194        6     1.0    1.0 10000.0    3.00     45.
  1300.   3.010        6     1.0    1.0 10000.0    3.00     45.
  1400.   2.850        6     1.0    1.0 10000.0    3.00     45.
  1500.   2.711        6     1.0    1.0 10000.0    3.00     45.
  1600.   2.586        6     1.0    1.0 10000.0    3.00     45.
  1700.   2.474        6     1.0    1.0 10000.0    3.00     45.
  1800.   2.374        6     1.0    1.0 10000.0    3.00     45.
```

					SCREEN			
1900.	2.284		6	1.0	1.0	10000.0	3.00	45.
2000.	2.201		6	1.0	1.0	10000.0	3.00	45.
2100.	2.127		6	1.0	1.0	10000.0	3.00	45.
2200.	2.058		6	1.0	1.0	10000.0	3.00	45.
2300.	1.996		6	1.0	1.0	10000.0	3.00	45.
2400.	1.938		6	1.0	1.0	10000.0	3.00	45.
2500.	1.885		6	1.0	1.0	10000.0	3.00	45.
2600.	1.835		6	1.0	1.0	10000.0	3.00	45.
2700.	1.788		6	1.0	1.0	10000.0	3.00	45.
2800.	1.744		6	1.0	1.0	10000.0	3.00	45.
2900.	1.703		6	1.0	1.0	10000.0	3.00	45.
3000.	1.664		6	1.0	1.0	10000.0	3.00	45.
3500.	1.502		6	1.0	1.0	10000.0	3.00	45.
4000.	1.372		6	1.0	1.0	10000.0	3.00	45.
4500.	1.263		6	1.0	1.0	10000.0	3.00	45.
5000.	1.168		6	1.0	1.0	10000.0	3.00	45.
5500.	1.085		6	1.0	1.0	10000.0	3.00	45.
6000.	1.012		6	1.0	1.0	10000.0	3.00	45.
6500.	.9464		6	1.0	1.0	10000.0	3.00	45.
7000.	.8878		6	1.0	1.0	10000.0	3.00	44.
7500.	.8368		6	1.0	1.0	10000.0	3.00	45.
8000.	.7907		6	1.0	1.0	10000.0	3.00	45.
8500.	.7486		6	1.0	1.0	10000.0	3.00	44.
9000.	.7099		6	1.0	1.0	10000.0	3.00	45.
9500.	.6744		6	1.0	1.0	10000.0	3.00	45.
10000.	.6415		6	1.0	1.0	10000.0	3.00	44.

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 10. M:

498.	6.454		6	1.0	1.0	10000.0	3.00	45.

****
*** SCREEN DISCRETE DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	MAX DIR (DEG)
180.	5.168	6	1.0	1.0	10000.0	3.00	45.

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	6.454	498.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **